Southeast Texas (SETX) and Southwest Louisiana (SWLA) Area Contingency Plan

Risk Analysis: Area Planning Scenarios

Annex 1a

July 2021

Record of Changes

Change Number	Change Description	Section Number	Change Date	Name
1	Renamed Appendix 12 to Annex 1a and removed Reference to Vol 2	All	30 July 2021	Todd Peterson, CGD 8
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1000 Introduction

The ACP has been developed by the MSU Port Arthur Captain of the Port, in consultation with the Southeast Texas and Southwest Louisiana Area Committee, and is based on an assessment of all potential sources of discharges in this area meeting the provisions of 40 CFR §300.210(c) of the NCP. The ACP is intended to be the fundamental element for building confidence that the plan addresses the necessary elements for planning a successful response within the area.

1100 Average Most Probable Discharge

The Coast Guard has determined Average Most Probable Discharge as the lesser of 50 barrels or 1% of a Worst Case Discharge for an offshore or onshore facility/pipeline/marine terminal, or the lesser of 50 barrels or 1% of cargo from a Tank Vessel during cargo transfer operations. This value was adopted for consistency with Federal Vessel and Facility Contingency Plans.

1200 Maximum Most Probable Discharge

The Coast Guard has defined Maximum Most Probable Discharge as the lesser of 1,200 barrels or 10% of the volume of a Worst Case Discharge for an offshore facility or onshore facility/pipeline/marine terminal; 2,500 barrels of oil for a vessel with an oil cargo capacity equal to or greater than 25,000 barrels; or 10% of the vessel's oil cargo capacity for vessels with a capacity less than 25,000 barrels for Tank Vessels. These values were adopted for consistency with Federal Vessel and Facility Contingency Plans.

1300 Worst Case Discharge

As defined by section 311(a) (24) of the Clean Water Act, the definition of a Worst Case Discharge in the case of a vessel is a discharge in adverse weather conditions of its entire cargo, and in the case of an offshore facility or onshore facility/pipeline/marine facility, the largest foreseeable discharge in adverse weather conditions. This definition has been adopted for consistency with Federal Vessel and Facility Contingency Plans.

At a minimum, Appendix 9400 addresses the following area planning elements:

1. Oil spill discharge and hazardous substance release history.
2. A risk assessment of potential sources of discharges within the area.
3. A description of planning assumptions describing a realistic assessment of the nature and size of possible threat and resources at risk.
4. Planning scenarios that provide for a Worst Case Discharge (WCD), a Maximum Most Probable Discharge (MMPD), and an Average Most Probable Discharge (AMPD) from a vessel, offshore facility, or onshore facility operating in the area as applicable.

1400 Spill and Discharge History

Table 1 Record of Worst Case Discharges and Releases

Date	Location	**Source** V = vessel OSF = offshore facility ONF = onshore facility OP = Pipeline	Product	Amount (bbls)	Responsible Party
02 Aug 2004	Sunoco Logistics Anchorage. Nederland, TX Neches River	V/TB	#6	714	Buffalo Marine
11 Nov 2005	Federal Waters Gulf of Mexico	V – Integrated Tank barge	Slurry Oil	45,846	K-Sea Transportation
19 Jun 2006	Lake Charles, LA	ONF	Waste Product	71,450	CITGO
23 Jan 2010	Port of Port Arthur, TX	V/TB	Crude	11,000	American Eagle Tankers

1500 Risk Assessment

A high probability exists for a WCD to occur anywhere in the Southeast Texas and Southwest Louisiana area given the high volume of deep-draft vessels (tank and non-tank vessels), the prevalence of oil and gas support vessels, offshore facilities (drilling rigs), oil and petrochemical terminals, and tug/tank barge composites. In addition, the unpredictable and sudden severe weather during transitional seasons and afternoon thunderstorms during the summer increase the risk.

2000 Possible Sources of WCD

The sections below describe the scenarios surrounding the source of a worst case discharge (WCD) scenario for offshore facilities, onshore facilities/pipelines/marine terminals, tank vessels and non-tank vessels.

2100 Offshore Facilities

Stone Energy Corp in West Cameron Block 176 is the worst case discharge in this area, located 26 miles from shore. The facility produces 73,679 barrels (3,094,518 gallons) per day of oil products. The first shoreline impact area would be Cameron, LA.

2200 Offshore Pipeline

The Garden Banks 426 A Pipeline, which is a 14-16 inch pipeline, with a through volume of 150,000 BBLS per day would be MSUPA’s example of a Worst Case Scenario for an Offshore Pipeline. The pipeline is approximately 40 miles long and is located between the GB 426 Louisiana shoreline where it intersects with 4 other Crude oil pipelines. Pumping station are located strategically along the route of the Pipeline complex.

2300 Onshore Facilities/Pipelines/Marine Terminals

The Worst Case Discharge (WCD) from an onshore facility, pipeline, or marine terminal will be contingent on the specific location, type of product, weather conditions and scenario in which the discharge would occur. The Southeast Texas and Southwest Louisiana area is home to numerous onshore petrochemical facilities. These facilities also utilize thousands of miles of pipelines to receive feed stocks and transport products to other facilities and terminals.

The Chevron Beaumont Terminal in Beaumont, TX has been identified as the Worst Case Discharge (WCD) from an onshore facility. The facility has a WCD of 370,620 barrels of crude oil. The terminal has a total of 7.2 million barrels of tank storage capacity, comprised of 66 tanks with capacities ranging from 15,000 to 360,000 barrels each. The Chevron Beaumont Terminal can receive and redeliver crude oil and products via barge, ship, tank truck, tank rail car and pipeline, and it can store and/or blend crude oil or products for short or long-term periods.

Picture 1 Chevron Beaumont Terminal in Beaumont, TX

2400 Rail

The Worst Case Discharge (WCD) from Rail would be from BNSF/Union Pacific in Jefferson County, with 12,857 barrels (540,000 gallons) of oil products.

2500 Tank Vessels Offshore

The Worst Case Discharge (WCD) from a tank vessel originating in the Southwest Texas and Southwest Louisiana area has been identified as the total loss of an Ultra Large Crude Carrier (ULCC). These types of vessels carry upwards of up to 4 million barrels of Arabian heavy crude (API 27.67) crude products as cargo on board.

The likely scenario involving the total loss of a ULCC would be the collision of a ULCC and another Very Large Crude Carrier (VLCC) in the South Sabine Lightering Area (28-32 N, 093-40 W) resulting in the total loss of the ULCC and all product on board.

Picture 2 VLCC EAGLE VIRGINIA

The VLCC EAGLE VIRGINIA is considered to be the largest crude oil tank ship that arrives at the Lightering Zone of the Southeast Texas Coastline. Owned by American Eagle Tankers Houston, TX, the vessel is 333 meters (1,092.5) long with a Dead Weight Tonnage (DWT) of 307,000 tons, with a draft of 75 feet. The M/V EAGLE VIRGINIA is capable of transporting 2,000,000 barrels of crude oil. In order to transport the crude oil to the ports of Port Arthur, Lake Charles and Houston, four lightering ships are used to transport the cargo. As a reference point the VLCC EAGLE VIRGINIA is three times the DWT of the vessels it lighters to which are mainly AFRAMAX tankships. In Cargo Capacity an AFRAMAX used for lightering into the Port of Port Arthur or Beaumont has a capacity of 419,000 barrels.

A Worse Case Discharge incident would involve any of the lightering ships colliding with the EAGLE VIRGINIA in a fog laden lightering zone which would break the VLCC in half discharging all 2,000,000 barrels of crude oil into the Gulf of Mexico.

2501 Initial response actions and strategies

- Identify cargo, hazards, and amount spilled. (2 hours)
- Establish Incident Command Post. Implement response organization (ICS; unified command).
- FOSC authorizes initial application of dispersants in accordance with RRT-6 Dispersant Policy. (next day, first light)
- Stage in situ burning equipment and request approval for burn for when weather conditions will improve in accordance with RRT-6 In-situ Burn Policy. (12 hours)
- Initiate on-water oil recovery operations. (12 hours)
- Issue Letter of Federal Interest to vessel rep. and Letter of Designation
- RP is not taking action: Issue Letter of Assumption; access Fed/State Pollution Funds; and initiate response actions.
- Identify/prioritize sensitive areas.
- Designate offshore field command posts, staging areas, and dispatch response teams.

2502 Spill Response Organization

Situational: Activate ICS and establish a Unified Command Post.
Organization: Unified Command Structure; FOSC, SOSC, RP Rep., Fed/State Resource Trustees, Local Emergency Response Coordinators. SONS organization will likely be activated for a spill of this magnitude.

Critical positions:

a) FOSC/SOSC
b) Scientific Support Coordinator
c) FOSC/SOSC/RP representatives stationed offshore on a CG Cutter
d) Media/Public Relations

2503 Containment, Countermeasures and Cleanup Strategies

Offshore

- Dispersant application in accordance with RRT-6 Dispersant Policy (aircraft & vessel)
- In situ burning in accordance with RRT-6 In-situ Burn Policy
- Open water oil recovery

Nearshore Recovery

- Open water oil recovery
- In situ burning in accordance with EPA Region VI In-situ Burn Policy

Shoreline Protection

- Uses natural along shore currents to funnel deflect oil into natural collection points. Prioritize and protect sensitive areas. Presents opportunity to test different methods for cleanup bioremediation in remote areas.

Inland Strategies

- Potential for significant impact to coastal and tidally influenced inland waters.
- Prioritize and protect sensitive areas.
- Sensitive areas: Coastal bays, estuaries, and wetlands. Protective booming where possible; nestling protection, and animal hazing.

Additional resources will be requested from: (12 - 48 hour response time for all resources.)

Federal:

- National Strike Force Coordination Center
- NSF
- RRT
- Natural Resource Trustees
- Regional CG Sectors and MSUs
- CG Strike Teams
- National Pollution Funds Center
- District Response Advisory Team
- Public Information Assist Team
- Scientific Support Coordinator
- USCG DOL-92 Contracting

State:

- TGLO
- TCEQ
- TPWD
- Local/Municipal Public Works

Current Shortfalls:
Equipment:

- Logistics staging equipment and operating it offshore.
- Limited availability of dispersant stockpiles.

Personnel: Additional personnel will come in from outside the area.
Funds: None.
Minimum response times: Delays in response due to distance.

Duration of Cleanup

- Mechanical cleanup only - 3 weeks
- Mechanical cleanup combined with other methods - 4-7 days.
- NOTE: THESE TIMES ARE FOR PLANNING PURPOSES ONLY AND DO NOT REFLECT PERFORMANCE STANDARDS.

Disposal Options for Different Volumes of Debris

- Landfill: Sorbents and oiled debris (every 20 cu yards must be analyzed for total petroleum hydrocarbons).
- Recovered product: Return to facility processes.

Procedures and Criteria for Terminating the Cleanup

- Cleanup Termination: The cleanup efforts will continue until the determination is made jointly by the FOSC, SOSC, Natural Resource Trustees, and Responsible Party to cease cleanup operations.

2600 Tank Vessels within the Sabine Neches Channel

Picture 3 MV EAGLE OTOME

On January 23, 2010, the 810-foot-long tanker EAGLE OTOME allided with the 597-foot-long general cargo vessel GULF ARROW at the port of Port Arthur, Texas. The EAGLE OTOME was subsequently struck by a 297-foot-long barge, the Kirby 30406, which was being pushed by the towboat DIXIE VENGENCE.

As a result of the accident, an estimated 462,000 gallons of oil spilled into the water. This was the largest Oil Spill recorded in the State of Texas in the last 16 Years. It was also the largest Oil Spill in the Sabine-Neches Channel in over 30 years.

MSU Port Arthur Personnel immediately utilized the Southeast Texas/Southwest Geographic Response Plan and the Unified Command of Coast Guard and Texas General Land Office immediately dispatched local OSRO's to implement the Sabine-Neches Channel Booming strategies identified in the GRP. As a result, the largest oil spill in the State of Texas resulted in minimal environmental and economic impact and the channel was quickly opened to expedite the Marine Transportation system.

Picture 4 Sabine Lake and Neches Sabine Channel

3000 Vulnerability Analysis

The MSU Port Arthur Captain of the Port zone includes many areas that are considered vulnerable for the effects of an oil spill. The potential effects of the spill could affect human health, property, and the environment. Information taken from real world events and spill trajectories has shown that a WCD from any source could have a devastating effect on fish, wildlife, and sensitive environments in the area. The analysis shows that the following items could be vulnerable from the effects of a major oil spill in the area:

(1) Water intakes (drinking, cooling, or other)
(2) Businesses
(3) Residential areas
(4) Wetlands and other sensitive environments
(5) Fish and wildlife
(6) Endangered flora and fauna
(7) Recreational areas
(8) Marine transportation systems
(9) Utilities
(10) Other areas of economic importance (beaches, marinas).
(11) Unique habitats or historical sites.

A WCD from an Ultra Large Crude Carrier or Very Large Crude Carrier tank vessel or an offshore/onshore facility would most likely impact these vulnerable and sensitive environments, which are identified and described in Section 4000 of the ACP. The strategies and tactics used to protect, recover, and mitigate the effects of a WCD are addressed in Section 3000 of this ACP.

3100 Planning Assumptions

The probability of a WCD occurring in the area is low. However, offshore facility operations, large crude carrier vessel transits, navigational hazards, and the operational activities associated transfer, handling, and storage of oil, along with the activities associated with offshore oil and gas exploration within the area provide high consequence situations for a WCD. Factor in natural disasters such as tropical storms and other severe weather events, the likelihood of a major spill occurring in the area increases significantly.

3101 Offshore Facilities

During drilling operations there are two areas for potential loss of well control. These are categorized as surface hole drilling, which does not have a potential for oil discharge and drilling below the surface of the hole, which is the primary source of an oil discharge. While drilling below the surface kicks can occur due to abnormally forming pressure from the weight of drilling fluid, tripping too fast, not filling the hole, mud losses due to lost circulation zones, though most kicks occur due to human error. Equipment alone will not prevent kicks from occurring. Personnel must be trained to monitor drilling operations and react correctly to anomalies.

Blow-out prevention equipment and procedures will be used to remove the kick in a below surface well before a more serious blow-out can occur. Blow-out preventer (BOP) and casing installations must conform to BSEE regulations (30 CFR 250, subpart D). BOP equipment will contain fluids and pressures in the annulus and drill pipe, and the mud weight is raised to overbalance the bottom hole formation pressure. In addition, there are well kill procedures to circulate heavier mud into the well and remove the kick fluids safely.

3102 Response Resources and Locations for WCD Offshore Platform Scenarios

Table 2 Response Resources (labeled as Component) for WCD Offshore Platform Scenario

Component	Component Function	Component Location
18 – ¾”, 15ksi capping stack**	• Stack to stop flow with four 5” side outlets • Full pressure containment (15 ksi) • Dual pressure barriers throughout, including blind flange above the BOP ram • Single BOP ram to divert flow to side outlets • Includes Subsea hydraulic accumulator skid to function BOP ram • Tear down every 3-5 years may be required by BOEME	Houston
Single-Valve Capping Stack (1)**	Stack to stop flow with four 5” side outlets • Full pressure containment (6.6 ksi) • Uses single 12” ball valve to close with a top blind flange as a second pressure barrier	Houston

Component	Component Function	Component Location
Capping Stack Running Tool	Capable of running via wire or drill pipe • Generic procedures available upon request through MWCC	Houston
Top Hats (5)**	Direct fluid from top of BOP or LMRP or wellhead via riser to containment vessel • Recover oil as a containment dome • Multiple GOM Contractors capable of fabricating additional Top Hats and/or Containment Domes. For example, Gulf Marine Fabricators, Kiewit Offshore Services	Houston (4) • Houston (1)
Subsea source dispersant injection system**	Inject dispersant to leak source subsea via CT unit/manifold and flying leads • Includes coil tubing interface, distribution manifold, flying leads, and wands	Subsea items being built by BP in Houston to replace items retained as evidence
Subsea assembly for Polished Bore Receptacle (PBR) Riser System**	Transfer fluids from manifold to Marine Capture Vessels via drill stream riser • Includes pile, side outlets (2), valves, drill pipe interface • PBR and associated manifold are mounted onto suction pile via universal mounting plate	Houston (most components) • Houma, LA (drill pipe interface)
Light-Duty Intervention Systems (LDIS) – (2)	Transfer fluids from manifold to Marine Capture Vessels • Riser run with derrick and had flexible pipe on bottom to connect to Subsea manifold • Mutual Aid from BP • Includes riser bottom assembly with isolation valve and quick disconnect, parking pile (1)	Houston (main components) • Houston (1 pile) • Second parking pile to be fabricated by MWCC
CDP Production Manifold (1)**	Production/kill manifold (6 hubs)	Berwick
Choke and Kill Manifold (1)**	Production/kill manifold (4 hubs)	Berwick

Component	Component Function	Component Location
Free-Standing Riser Systems (2)** (Top and bottom automated components)	Transfer fluids from manifold to Marine Capture Vessels	Houston (main components) • Houston (suction piles) • Galveston (buoyancy elements)
Containment Chambers (2)**	Capture leaking oil from a seabed breech or broken riser	Houston (1) • Fourchon yard (1)
Flange Transition Spool (1)	ROV-installed adaptor to transition from a flex joint top flange (GE Vetco HMF-G) to a connection hub/mandrel onto which the capping stack is attached	Houston
GE Latch Cap	ROV-installed adaptor to transition from a flex joint top flange (GE Vetco HMF-G) to an upward facing studded 18-3/4" 15ksi connection	Houston
Flexjoint Overshot (1)	Pressure-containing housing to encapsulate flexjoint so that capping stack can be connected with a seal	Houston
Flexible pipe of various sizes and pressure ratings (see complete listing in separate attachment (available by request)**	Transfer fluid from well to manifold • Transfer fluid from manifold to risers • Transfer fluid from riser tops to Marine Capture Vessels • Sizes range from 3" to 6" • Pressure ratings from 5000 – 15000 psi • Over 34000 ft total length of pipe	Houston and Ingleside
Cameron subsea Choke	Chokes flow coming off capping stack during well shut in, or for controlled venting	Berwick, LA
Hydrate inhibition system**	Umbilical fed methanol injection system with Subsea distribution manifold and flying lead	Houston
Subsea Autonomous Dispersant Injection (SADI) system**	Provide up to 5 days of dispersant injection autonomously if surface vessel supporting system had to leave due to hurricane. Includes several storage units on mud mats, adjacent battery backs and electric pumps. Jumpers and hoses led to "wands" located at planned vent points	Houston

Component	Component Function	Component Location
Suite of intervention Tools	Includes Flange removal overshot tool • Flex joint jacking and restraint tools • Flange splitters	Houma, LA • Not built yet • Houston
Subsea pressure venting equipment	Includes burst disc assembly	Berwick, LA
Subsea connection systems	Includes connectors, goose necks, and flange adaptors for connection to flexible pipe • Connectors include Cameron 3” mini collect connectors and Oil State’s RIC connectors	Houston • Berwick, LA
Riser insertion tube tool (RITT) (2)	Capture oil from the end of a parted riser	Houston
Subsea hydraulic accumulator and distribution system	Provides larger volume boost for ROV actuation • Bladder system, valves on choke and kill CDP manifold, BOP stack, back up for 15 ksi capping stack • Mutual Aid from BP	Currently in use by BP at Deep Water Horizon

3200 Blowout and Firefighting Specialists

Table 3 List of Blowout and Firefighting Specialists

Firefighting Boats	
Edison Chouest Offshore, Inc. - Galliano, LA	(985) 601-4444
Jackup Boats	
Cudd Energy Service	
Houston, TX	(832) 295-5555
Houston, TX – Toll Free	(800) 899-1118
Robstown, TX	(361) 387-8521
Robstown, TX – Toll Free	(800) 762-6557
*Danos & Curol*e - Larose, LA	(985) 693-3313
Global Industries	
Carlyss, LA	(337) 583-5000
Toll Free	(800) 256-7587
Tetra Applied Technologies – Belle Chasse, LA	(504) 394-3506
Firefighting Experts	
Boots & Coots - Houston, TX – Toll Free	(800) 256-9688 / (281) 931-8884
Cudd Energy Service / Houston, TX	(713) 849-2769 / (832) 295-5555
Toll Free	(800) 899-1118
Wild Well Control - Houston, TX	(281) 784-4700
Williams Fire & Hazard Control	
Vidor, TX	(281) 999-0276
Alternate Number	(409) 727-2347

3201 Planning Scenarios

Given the applicable conditions described above, the WCD, MMPD, and AMPD volumes from all potential sources is calculated and listed in the table below. The MMPD and the AMPD scenario volume is calculated based on a fixed number established for an offshore facility, an onshore facility/pipeline/marine terminal, or a percentage of the WCD rate from each potential source. For tank and non-tank vessels, the MMPD and the AMPD scenario volume is calculated based on a fixed number, a percentage of the cargo capacity, or the cargo transfer rate.

Therefore, the MMPD and AMPD spill volumes from an offshore facility or onshore facility/pipeline/marine terminal is calculated as:

- 1,200 barrels or 10% of the WCD volume when calculating the MMPD.
- 50 barrels of 1% of the WCD volume when calculating the AMPD.

The MMPD and AMPD spill volume from a tank/non-tank vessel is calculated as:

- 2500 barrels with a cargo capacity greater than or equal to 25,000 barrels, or 10% of the cargo capacity when calculating the MMPD.
- The lesser of 50 barrels or 1% of cargo from the vessel during cargo transfer operations when calculating the AMPD.

All planning scenarios that provide for WCD, MMPD, and AMPD are outlined in the Geographic Response Plan.

3202 Jurisdictional Scenarios

Many response situations will fall within multiple jurisdictions and therefore pose the issue of which agency should take the lead. The following scenario is an example that can be used as guidance for determining Federal or State jurisdictional ownership.

3203 Scenario: Abandoned drum on beach

An abandoned drum filled halfway with unknown liquid is found in the Sabine Neches Waterway. The drum is well above the high water line and has no discernible markings but it is likely the drum contains a hazardous substance; the Coast Guard takes the lead and facilitates removal/disposal of the drum. If a drum is found on the beach or in close proximity to the ocean and it is unknown what substance is contained within, the Coast Guard will more than likely take the lead to remove / dispose of the drum due to its close proximity to the navigable waterway.